

State Agency Greenhouse Gas Emission Reduction Report Card

Background

Under Section 12890 of Part 2.5 of Division 3 of Title 2 of the Government Code (as contained in SB 85, 2007), the California Environmental Protection Agency (Cal/EPA) is required to prepare an annual report describing state agency actions to reduce greenhouse gas (GHG) emissions. State Agencies are required to prepare and submit to Cal/EPA two lists of GHG reduction measures.

The first:

“A list of those measures that have been adopted and implemented by the state agency to meet GHG emission reduction targets and a status report on actual GHG emissions reduced as a result of these measures.”

The second:

“A list and timetable for adoption of any additional measures needed to meet GHG emission reduction targets.”

Cal/EPA is required to compile and organize this information in the form of a ‘Report Card’ and post it on the Cal/EPA website. The Report Card must also compare the reductions from actions taken or proposed to be taken by a state agency to that agency’s GHG reduction targets and to the statewide GHG emission reduction goals.

Approach for the Second Climate Change Report Card

Below we describe the tables in this report and the method Cal/EPA used to compile the information. This is the second of these yearly reports. It is important to note that the first Report Card, completed in April 2008, was done prior to the development of the Scoping Plan required by the Global Warming Solutions Act of 2006. As such, the first Report Card included many strategies in the very early stages of development, some of which changed significantly or were not pursued further for various reasons. The strategies and measures in this second edition of the Report Card are those that are expected to be developed through full implementation. They are either included in the Scoping Plan or have been initiated as separate actions by individual agencies in support of the state’s long-term GHG emission reduction goals.

The original format for the Report Card has also been changed. In this edition, the numbering system used for strategies in the Scoping Plan has been adopted for the Report Card as well. All strategies are identified in one of three ways: by the specific strategy number as found in Appendix E of the Scoping Plan; by citation as to where in the Scoping Plan the measure is discussed if it is not a specific numerated strategy; or as a measure ‘not in the scoping plan’ if it is being initiated by an agency in support of overall GHG emission reduction goals outside the Scoping Plan process. This revised structure will facilitate tracking the strategies as they progress through development stages and tie them to the emission reduction targets set out in the Scoping Plan.

Tables in the Report Card

1. On-going Measures and Reductions in 2007: Several GHG emission reduction measures were in place in 2007, including: forest management practices; solid waste recycling; energy efficiency programs; building energy efficiency standards; and appliance energy efficiency standards. The emission reductions achieved by these measures in calendar year 2007 reported to Cal/EPA by the responsible agencies are shown in Table 1.

2. GHG Emission Reduction Strategies, and Timelines for Implementation: The Climate Action Team (CAT) agencies also provided Cal/EPA with information regarding the strategies and measures that they will be implementing over the next few years, including the expected GHG emission reduction from each, and the timeframe for completion. This information is reported in Table 2.

The timeframes noted in Table 2 reflect current estimates based on the work to date. Where the timetable indicates “To Be Determined (TBD)”, work on the measure is in preliminary stages. Measures described as “on-going” have already begun, but either the final completion dates are still to be determined, or they are programs being implemented on a continuous basis. Future Report Cards will update these completion dates as implementation efforts mature.

There are several factors to consider regarding the reported GHG emission reductions in Table 2. There are a number of strategies with cross-agency implementation responsibilities for which individual agency reduction targets cannot be defined at this time. The total reduction for these measures may be listed twice to reflect that each agency is in fact responsible for some portion of the reductions. There are also several individual measures for which there are interacting impacts so that the reduction numbers from each are not strictly additive (as recognized and explained in the AB 32 Scoping Plan). Also, there are a number of CAT agency efforts which are not reflected in the AB 32 Scoping Plan, several of which have emission reductions which are reported as TBD. Additionally, the reductions categorized in the Report Card as “Cap and Trade Program” have yet to be determined, as explained in Table 2.

3. Agency and State Target Comparison: We used the statewide reduction goal for 2020 of 174 MMTCO₂E in 2020 as established pursuant to AB 32. The agency targets were developed based on the strategies that the agencies will implement in the coming years. Unlike the measures from Table 2, the targets reported in Table 3 consider the interactions among strategies and the divided responsibility among agencies. Currently the sum of the state agency targets is 140 MMTCO₂E, which does not yet include an estimate of emission reduction from the cap-and-trade program.

Table 1: On-going Measures and Related GHG Emission Reductions for 2007

Agency, Program Title	Description	Emission Reductions, MMTCO₂E
California Air Resources Board, Diesel Anti-Idling	This regulation limits general idling of all commercial and publicly owned diesel-fueled vehicles with a gross vehicle weight of greater than 10,000 pounds. This Air Toxic Control Measure reduces diesel particulate matter and also reduces the amount of diesel fuel used in California, saving 50 million gallons in 2006. Each gallon saved reduces climate change emissions by 0.01005 MtCO ₂ .	0.5
CAL FIRE, Forest Practices	Conservation Forest Management benefits: <ul style="list-style-type: none"> ◦ Annual benefit from Forest Practice Act rule changes instituted in December 2004 equals 2.2 MMT.¹ ◦ CAL FIRE is working with non-state entities to promote reductions from voluntary carbon markets, e.g. CCAR verification of Garcia and Van Eck projects² instituted in 2004 on 26,000 acres of private lands, which provided 0.08 and 0.03 MMT, respectively, in 2006. 	2.2
CAL FIRE, Urban Forestry	Urban Forestry benefits: <ul style="list-style-type: none"> ◦ CAL FIRE funded planting of 7,414 trees in 2007 and a total of over 29,000 trees since 2005. Cumulative plantings will produce 1000 tons CO₂e benefits annually by 2020.³ ◦ CAL FIRE educational programs enhance effectiveness of voluntary tree planting by homeowners, utilities and others, but we cannot reliably track voluntary outputs at this time. 	***
CAL FIRE, Forest Legacy	Forest Conservation <ul style="list-style-type: none"> ◦ State Prop 40 and 50 conservation purchases (multiple agencies) in 2005 and 2006⁴ produce annual benefits through continued growth and sequestration equal to 0.03 MMT. ◦ DFG⁵ purchased 2300 acres of oak woodland through Prop 84, avoiding up to 0.02 MMT emissions due to conversion. 	<0.1

Agency, Program Title	Description	Emission Reductions, MMTCO ₂ E
CAL FIRE, Vegetation Management Program	Fuels management and biomass benefits: <ul style="list-style-type: none"> ○ CAL FIRE fuel treatments⁶ on 10,000 acres avoided 0.0014 MMT CO₂e⁷ wildfire emissions; negligible biopower benefits at this time. ○ USFS and other federal agencies treated over 50,000 acres in 2007.⁸ Benefits cannot be estimated at this time. 	<0.1
CAL FIRE, California Forest Improvement Program	Reforestation/afforestation benefits: <ul style="list-style-type: none"> ○ CA Forest Improvement Program planted 500 acres in 2007 (ahead of the implementation year in CAT report but much lower acreage than targeted for full implementation). No net sequestration benefits now, but after 2020 these 500 acres will begin to produce 0.01 MMT annual benefits.⁹ ○ Actions by non-state CAL FIRE partners: USFS planting of about 8,600 acres in 2007 will produce 0.05 MMT benefits annually by 2020.⁹ If reforestation starting in 2005 were considered, annual benefits would be 0.25 MMT in 2020. 	***
California Department of Water Resources, End Use Water Conservation & Efficiency	This program promotes greater implementation of water conservation measures, including best management practices, to improve efficiency. Implementation occurs at the local level, and reporting of conservation implementation is inconsistent and incomplete, making it impossible to report progress accurately or quickly. Estimates of conservation savings lag at least three years behind implementation of conservation measures.	**
California Energy Commission, Appliance Energy Efficiency Standards	The Appliance Efficiency Regulations are designed to increase the efficiency of appliances sold or offered for sale to California consumers and businesses. Emission reductions result from energy efficient appliances consuming less electricity and natural gas, thereby avoiding emissions associated with electricity generation and natural gas combustion appliances used by residential and non-residential customers. Each MWh of electricity avoided reduces emissions by 0.499 MtCO ₂ . ¹⁰ Each MMBtu not produced by the combustion of natural gas prevents emissions by 0.0529 MTCO ₂ . Reductions in 2007 were 0.3 million MWh of electricity and 0.5 million MMBtu of natural gas.	0.2

Agency, Program Title	Description	Emission Reductions, MMtCO ₂ E
California Energy Commission, Building Energy Efficiency Standards	The Building Energy Efficiency Standards are designed to increase the efficiency of all newly constructed residential and nonresidential buildings and additions and alteration to existing buildings in California. The principal strategy is to develop, implement, and enforce standards that require and result in reduction in energy use in these buildings. Each MWh of electricity avoided reduces emissions by 0.499 MtCO ₂ . Each MMBtu not produced by the combustion of natural gas prevents emissions by 0.0529 MtCO ₂ . Reductions in 2007 were 0.4 million MWh of electricity and 0.7 million MMBtu of natural gas.	0.2
California Energy Commission, Comprehensive Publicly Owned Utility Customer Energy Efficiency Programs	The publicly owned utilities in California offer primarily electric energy efficiency programs to their ratepayers (one utility, City of Palo Alto, has a natural gas efficiency program). In 2007, the 39 utilities that report to the Energy Commission had saved 254,000 MWh. The publicly owned utilities reported GHG emissions reductions for the first time in 2007. Their 2007 programs will save .25 million MWh and reduce statewide emissions by 0.13 MMtCO ₂ .	0.1
California Integrated Waste Management Board, Statewide Recycling	This program reduces climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. In 2006 the diversion rate was 54 percent, surpassing the goal of 50 percent, reducing climate change emissions by several MMtCO ₂ e. However, many of the reductions take place outside of California.	**
SCSA, Green Buildings - LEED	This measure reduces climate change emissions associated with the design and construction of state buildings. During 2007, two building projects were completed and certified under the LEED program at the level of Silver. These buildings are 33.5% and 9.9% better than current Title 24 code requirements respectively, for a total reduction of 135 MT CO ₂ . The combined reduction in electricity usage from what it would be if the buildings were designed to code is used to compute the GHG reductions.	<0.1
SCSA, Green Buildings – Distributed Generation	This measure reduces climate change emissions associated with the installation of clean on-site renewable generation. A total of eight solar Photo Voltaic projects were completed in 2007 for a total of 4.2 MW of generation capacity, resulting in a reduction of 2,026 MT CO ₂ .	<0.1

Agency, Program Title	Description	Emission Reductions, MMTCO ₂ E
SCSA, Green Buildings – Existing State Buildings Retro-Commissioning	This measure reduces climate change emissions associated with the optimization of energy systems and improvement of environmental performance in existing buildings. A total of 25 of these projects were completed in 2007 for an overall reduction in grid-based electricity usage of 4 Million KWH/Year, for a reduction of 1,800 MT CO ₂ ..	<0.1
California Public Utilities Commission, Investor-Owned Utilities Energy Efficiency Programs	The CPUC funds energy efficiency programs through a combination of the Public Goods Charge (mandated by law) and the resource procurement budgets of the utilities. The programs developed for energy efficiency reach residential - single family, residential - multi-family, commercial, industrial, and agriculture customers of investor-owned distribution utilities. Reductions in 2007 were 5.3 million MWh of electricity (2,325,000 MWh from PG&E; 2,409,000 MWh from SCE; 547,000 MWh from SDG&E) and 71 million Therms of natural gas. Each MWh of electricity avoided reduces emissions by: 0.26 MtCO ₂ for PG&E; 0.32 MtCO ₂ for SCE; 0.35 MtCO ₂ for SDG&E. ¹⁰ Each Therm not produced by the combustion of natural gas prevents emissions by 0.00529 MtCO ₂ .	1.9
California Department of Food and Agriculture, Renewable Energy - Photovoltaic	CDFA Division of Fairs and Expositions continues to coordinate the funding, site selection, and installation of photovoltaic panels at fair facilities. Currently, 26 fairs have operational systems producing approximately 8.1 megawatts of energy. There are 12 more projects in the pipeline.	**
California Department of Food and Agriculture, Waste Reduction / Recycling	To date, 35 fairs in California are serving as community sites for e-waste recycling to assist in diverting waste to landfills. Several fairs have participated in recycling grant programs overseen by the Integrated Waste Management Board. Specifically, Fresno fair applied for and received a \$400,000 grant to build new footing areas in their paddock stalls at their horse race track and installed 4,000 square feet of new flooring in their pavilions. All of the products used consisted of recycled tire material.	**

FOOTNOTES:

** Emission Reduction un-quantified.

*** Unlike most programs, the emission reductions from forestry projects do not start in the same year as the activity that causes the reductions. The program has three years of implementation 2005-2007, which will achieve meaningful reductions in a few years as the trees reach a faster-growing stage.

1. CAL FIRE, Forest Conservation Management Strategy, AB 32 Scoping Plan, Appendix E
2. CA Climate Action Registry/Offsets/Projects/Garcia and Van Eck projects;
3. Estimate derived using methodology from CAL FIRE Urban Forestry Strategy, AB 32 Scoping Plan Appendix E
4. CAL FIRE, Forest Conservation Strategy, AB 32 Scoping Plan Appendix E
5. Personal communication, DFG. CAL FIRE used methodology from Forest Conservation Strategy, AB 32 Scoping Plan Appendix E, to estimate avoided conversion benefit.
6. Estimate based on 10,900 ac treated under non-VMP projects, a small portion of which may be prescribed burns
7. Estimate derived using GHG reduction rate results from CAL FIRE Fuels Management/Biomass Strategy, AB 32 Scoping Plan Appendix E: i.e., 0.022 MMT CO₂e/155,600 acres x 10,000 acres treated in 2007 = 0.0014 MMT reductions
8. Department of Interior and USDA Fuels Treatment Accomplishments Report website: <http://www.forestsandrangelands.gov/reports/fuel-treatments.cfm?statername=California&FY=2008>
9. Estimates based on methodology from CAL FIRE, Reforestation/Afforestation Strategy, AB 32 Scoping Plan, Appendix E.
10. CEC uses a GHG emission factor for electricity averaged over all utilities statewide. CPUC uses emission factors for investor-owned utilities, which are lower than the statewide average.

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
	AIR RESOURCES BOARD STRATEGIES				
	<i>AGRICULTURAL SECTOR</i>				
A-1	ARB	Methane Capture at Large Dairies	2017-2020	₁ ³	This measure is being considered in collaboration with CDFA. This measure would encourage voluntary installation of anaerobic digesters at large dairies to capture methane from manure.
Appendix C, Section 12	ARB	Adoption of Manure Digester Project Protocol	Adopted September 2008	N/A ⁴	Provides standardized accounting methodology for projects that reduce GHG emissions through optimal waste management practices, from storage, disposal and transport.
	<i>FOREST SECTOR</i>				
Appendix C, Section 16	ARB	Adoption of CCAR's Forestry Protocol	Adopted October 2007	N/A ⁴	This protocol is an accounting mechanism to determine, on a project level, GHG emissions reductions from forest management; contains the elements necessary to generate high quality, conservative carbon credits.
Chapter II, Sections B and D	ARB	Adoption of Urban Forest Protocol	Adopted September 2008	N/A ⁴	This protocol provides cities, counties, agencies, utilities and educational campuses guidance on how their tree planting and maintenance efforts, if properly conducted, can maximize carbon storage.
	<i>HIGH GLOBAL WARMING POTENTIAL (GWP) GASES</i>				
H-1	ARB	HFC Reduction Strategies: Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	2009-2010	0.26	This regulation would require a self-sealing valve on small cans of refrigerant, and a deposit and recycling program for the cans. □
H-2	ARB	SF₆ Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	2009-2010	0.3	This regulation would place restrictions on nonessential end uses of SF ₆ , where feasible alternatives are available.
H-3	ARB	High GWP Reduction in Semiconductor Manufacturing (Discrete Early Action)	Scheduled for Board consideration February 2009	0.15	This regulation would require manufacturers to use process optimization, alternative chemistries, and abatement technologies in combination or separately (reduces PFCs through changing the process to use lower GWP chemicals, or installing thermal oxidizers to destroy the PFCs).
H-4	ARB	Limit High GWP Use in Consumer Products-- Pressurized Gas Duster GWP Limit of 150 and Other Consumer Product Categories (Discrete Early Action)	Adopted June 2008	0.25	This regulation would require setting GWP limits on specific consumer products.
H-5	ARB/BAR	High GWP Reductions from Mobile Sources: 1) Air Conditioner Refrigerant Leak Test During Vehicle Smog Check 2) Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems 3) Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers 4) Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	1) 2011-2012 2) 2010-2012 3) 2011-2012 4) 2009-2010	3.3	This strategy will require: (1) an air conditioner refrigerant leak test during vehicle smog check, (2) the use of low GWP refrigerants be used for new MVAC systems, (3) the recovery of refrigerants from decommissioned refrigerated shipping containers and (4) Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems.

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H-6	ARB	High GWP Reductions from Stationary Sources: 1) SF ₆ Leak Reduction and Recycling in Electrical Applications 2) Foam Recovery and Destruction Program 3) Alternative Suppressants in Fire Protection Systems 4) Stationary Equipment Refrigerant Management Program--Refrigerant Tracking/Reporting/Repair/Deposit Program 5) Residential Refrigeration Early Retirement Program 6) Stationary Equipment Refrigerant Management Program--Specifications for Commercial and Industrial Refrigeration	1) 2010-2012 2) 2009-2010 3) 2010-2011 4) 2009-2010 5) 2010-2011 6) 2011-2012	10.9	This strategy would require 1) leak detection equipment in electrical applications and recycling of gases during maintenance; (2) collection of foam and then either recycling or destruction of high GWP gases; (3) reduction of emissions from fire protection systems through leak reduction, use of low GWP alternatives, and end-of-life recovery; (4) require commercial and public facilities with large stationary air conditioning and refrigeration equipment to minimize emissions of high GWP refrigerants through reporting, leak repair, improved servicing, and end-of-life control.; (5) ARB to work with utilities to encourage recovery of high GWP materials from residential refrigerators at end of life; and (6) establishment of refrigerant and energy efficiency standards for new refrigeration equipment
H-7	ARB	Mitigation Fee on High GWP Gases	2009-2010	5	This regulation would establish an upstream fee on high GWP gases based on their global warming potential.
	INDUSTRY SECTOR				
I-1	ARB	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	2010-2012	N/A ⁴	This regulation would require major industrial facilities to conduct audits of the potential to reduce greenhouse gas emissions, criteria air pollutants, and toxic air pollutants.
I-2	ARB	Oil and Gas Extraction GHG Emission Reduction	2011-2015	0.2	These regulations would require minimizing the venting of natural gas to the atmosphere during maintenance procedures
I-3	ARB	GHG Leak Reduction from Oil and Gas Transmission	2010-2015	0.9	These regulations would require improving maintenance and inspection program for valves and flanges.
I-4	ARB	Refinery Flare Recovery System Improvement	2010-2012	0.3	This regulation would minimize GHG emissions by recovering gases before they are combusted by the refinery flare. The system collects the gas, compresses it, cools it, and then sends it back to a refinery process, where the recovered gas can be used as refinery fuel gas or refinery feedstock.
I-5	ARB	Removal of Methane Exemption from Existing Refinery Regulations	2010-2012	0.01	This regulation would require existing fugitive methane exemptions to be removed from the regulations applicable to equipment and sources employed in California's refineries.
	RECYCLING AND WASTE MANAGEMENT				
RW-1	ARB	Landfill Methane Control Measure (Discrete Early Action)	Scheduled for Board consideration January 2009	1	This regulation would require enhanced control of methane emissions from municipal solid waste landfills and would require owners and operators to install gas collection and control systems at smaller and other uncontrolled landfills. Additionally, all affected landfills would be required to satisfy enhanced methane monitoring requirements to ensure that their gas collection and control system is operating optimally and that fugitive emissions are minimized.
	TRANSPORTATION SECTOR				
T-1	ARB	Pavley I and Pavley II--Light-Duty Vehicle GHG Standards	Pavley I: Adopted Sept. 2004, Implementation 2009-2016 Pavley II: Under development 2008-2010. Implementation 2017-2020	31.7	These regulations would require reduction of GHG emissions from new passenger vehicles and light-duty trucks beginning with the 2009 model year. These regulations would add four GHG air contaminants to the vehicular criteria and toxic air contaminant emissions that California was already regulating – carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), and hydrofluorocarbons (air conditioner refrigerants).

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Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
T-2	ARB	Low Carbon Fuel Standard (Discrete Early Action)	Scheduled for Board consideration March 2009	15	This regulation would require fuel providers in CA to ensure that the mix of fuel they sell into the CA market meets, on average, a declining standard for GHG emissions measured in CO ₂ equivalent grams per energy unit of fuel sold.
T-3	Local Governments/ ARB / CalTrans / OPR Regional Planning Agencies	Regional Transportation-Related Greenhouse Gas Targets	Set targets by Jan. 1, 2010	5	This regulation would require that GHG targets be incorporated in land use decisions and in regional planning.
T-4	ARB	Vehicle Efficiency Measures: (1) Solar-Reflective Automotive Paint and Window Glazing (2) Tire Pressure Program (Discrete Early Action), and (3) Low Friction Engine Oils.	(1) 2009-2012 (2) Scheduled for Board consideration March 2009 (3) pending	4.24 (portion for which CEC is responsible, 0.26 MMTCO ₂ E, is included under CEC entry)	This strategy would require (1) the use of solar-reflective automotive paint and window glazing with the purpose of reducing the solar heat gain in a vehicle parked in the sun; (2) automobile servicing businesses to ensure proper tire inflation at the time of service, as well as public education about proper tire inflation; and (3) require passenger cars to use low friction engine oils to increase engine efficiency.
T-5	ARB	Ship Electrification at Ports (Discrete Early Action)	2007-2010 (Adopted December 2007)	0.2	This regulation requires most container, passenger, and refrigerated cargo ships to shut off their auxiliary engines while at dock and receive power from the electrical grid, or reduce their emissions by a similar amount via the implementation of other technologies.
T-6	ARB	Goods Movement Efficiency Measures: (1) Port Drayage Trucks (2) Transport Refrigeration Units Cold Storage Prohibition and Energy Efficiency (3) Commercial Harbor Craft Maintenance and Design Efficiency (4) Vessel Speed Reduction (5) Cargo Handling Equipment Anti-Idling (6) System-Wide Efficiency Improvements (7) Clean Ships	2009-2010	3.5	(1) This regulation would require the reduction of GHG, diesel PM, and NOx emissions from drayage trucks operating at California's ports and rail yards through retrofits and turnover of pre-1994 trucks; (2) This is part of the goods movement energy efficiency system; (3) this regulation would require reduction of fuel consumption and associated CO ₂ emissions through a variety of technologies and strategies that improve the efficiency of ocean-going vessels; (4) this regulation would require reduction of NOx emissions as well as diesel PM, SOx, and CO ₂ emissions resulting from reduced fuel consumption from speed reduction; (5) this regulation would require ARB to investigate and potentially develop a new measure to restrict unnecessary idling of cargo handling equipment, which would reduce fuel consumption and associated greenhouse gases, criteria pollutants, and toxic air contaminants; (6) this regulation would require reductions of GHG emissions from the goods movement system; (7) this regulation would require a reduction of fuel consumption and associated CO ₂ emissions through a variety of technologies and strategies, such as hull and propeller design in new ships, that improve the efficiency of ocean-going vessels.
T-7	ARB	Heavy-Duty Vehicle GHG Emission Reduction Measure (Aerodynamic Efficiency) (Discrete Early Action)	Scheduled for Board consideration December 2008/ Phased-In Schedule for Implementation	0.93	This regulation would require existing trucks/trailers to be retrofitted with the best available technology and/or ARB approved technology to reduce GHG emissions and improve the fuel efficiency of trucks; may include devices that reduce aerodynamic drag and rolling resistance.
T-8	ARB	Medium- and Heavy-Duty Vehicle Hybridization	2010-2012	0.5	This regulation and/or incentive program would reduce the GHG emissions of parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks through the use of hybrid technology.
	OTHER SECTORS / STRATEGIES				
Appendix C, Sections 3 and 4	ARB	Cool Communities	Scheduled for Board consideration April 2009	TBD	This guidance encourages efforts such as light colored pavement, cool roofs and shade trees to decrease the effective temperature of urban areas. These strategies can result in energy savings due to decreased need for air conditioning, leading to decreased GHG emissions associated with energy generation.

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Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
Chapter IV, Section B	ARB	Adoption of guidance/protocols for businesses	Scheduled for Board consideration April 2009	N/A ⁴	This protocol will provide guidance and informational resources to local businesses on best practices, emission calculation methods, case studies, cost-effectiveness information, and other tools to assist in reducing GHG emissions.
Chapter II, Section B	ARB	Adoption of Local Government Operations Protocol	Adopted September 2008	N/A ⁴	This protocol provides a standardized set of guidelines to assist local governments in quantifying and reporting GHG emissions associated with their government operations. Allows cities to track their own emissions over time, but is not intended to be used to compare one city's emissions to another city's emissions.
Chapter II, Section C. 1.	ARB	Cap and Trade Program	Board consideration November 2010; implementation January 2012	***	The broad-based California cap & trade program will provide a firm limit on GHG emissions. Links the California program with other Western Climate Initiative Partner programs to create a regional market system that will achieve greater environmental and economic benefits for the state.
	Total Reductions Expected from ARB Led Strategies			83.6	
<div>NOTE:</div> <div>*** To be set at a level needed to help achieve the GHG emission reduction target for 2020 as established in the Scoping Plan.</div>					
	BUSINESS, TRANSPORTATION AND HOUSING STRATEGIES				
	TRANSPORTATION SECTOR *				
Not in Scoping Plan	BTH, CalTrans	Strategic Growth Plan - Operational Improvements	2020	1.2	Congestion Management Plan
Not in Scoping Plan	BTH, CalTrans	Fleet Greening and Fuel Diversification	2020	0.1	Fleet replacement
Not in Scoping Plan	BTH, CalTrans	Non-Vehicular Conservation Measures	2020	0.3	Energy Conservation Opportunities
	INDUSTRY SECTOR				
Not in Scoping Plan	BTH, CalTrans	Portland Cement - 5% limestone cement mix **	On-going	0.5	Cement and Construction Industries
	Total Reductions Expected from BTH Led Strategies *			2.1	
<div>NOTES:</div> <div>* Responsibility for many of the reductions previously associated with land use, smart growth and related strategies has shifted to the ARB to ensure consistency with the AB 32 Scoping Plan and the mandates of SB 375 (Steinberg, Chapter 728, Statutes of 2008) (T-3 and others). Caltrans/BTH will play a very active role in the implementation of these and related land use measures through the Blueprint Planning process and other ongoing programs.</div> <div>** This strategy reflects Caltrans cement consumption only. The measure only includes the 2.5% limestone cement mix. The 25% fly ash is not calculated as part of this measure. It is also expected that given changes in CalTrans' cement standard, the GHG saving could be reflected in the statewide cement consumption as well. However, that saving is not shown here. The AB 32 Scoping Plan has identified the Cement Sector as falling under the GHG Cap.</div>					

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	CalFIRE / BOARD OF FORESTRY STRATEGIES				
	FOREST SECTOR				
F-1 (Substrategies Below)	CalFIRE / BOARD OF FORESTRY	Sustainable Forests [*]	On-going	5.0	Maintain the current level of carbon sequestration through sustainable management practices including reducing the risk of wildfires, avoiding or mitigating land-use changes that reduce carbon storage, and supporting voluntary actions to conserve biodiversity. Actions to support this strategy are detailed below.
F-1: Substrategy 1	CalFIRE / BOARD OF FORESTRY	Conservation Forest Management	2005-2020		Maintain and enhance forest stocks on timberlands through forest management practices subject to the Forest Practice Act.
F-1: Substrategy 2	CalFIRE / BOARD OF FORESTRY	Forest Conservation	2005-2020		Prevent conversion of forestlands through publicly and privately funded acquisitions and easements.
F-1: Substrategy 3	CalFIRE / BOARD OF FORESTRY	Fuels Management/Biomass	2005-2020		Reduce wildfire emissions through fuels reduction on private and federal lands and provide GHG benefits by using woody biomass for biofuels and biopower as fossil fuel alternative.
F-1: Substrategy 4	CalFIRE / BOARD OF FORESTRY	Urban Forestry	2005-2020		Plant trees in urban areas to sequester carbon and provide shade to reduce energy use. Urban forest wood waste will also be used for biopower (renewable energy/fossil fuel alternative).
F-1: Substrategy 5	CalFIRE / BOARD OF FORESTRY	Afforestation/Reforestation	2008-2020		Reforest state, private and federal lands to produce sequestration benefits.
	Total Reductions Expected from CalFIRE Led Strategies			5.0	
NOTES: [*] CalFIRE led activities may increase the baseline sequestration potential in future years as funding becomes available for more expansive implementation of the 5 substrategies listed above.					
	CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE STRATEGIES				
	AGRICULTURAL SECTOR				
A-1	CDFA, ARB	Methane Capture at Large Dairies (Enteric Fermentation, Dairy Digesters)	TBD	1 ³	In collaboration with ARB and stakeholders, CDFA continues to work on addressing regulatory permitting and financial barriers to a widespread voluntary adoption of anaerobic digesters on dairies.
Appendix C, Section 12	CDFA	Conservation Tillage/Cover Crops	TBD	TBD	CDFA's Fertilizer Research and Education Program has funded two studies related to conservation tillage and cover crops: 1. "Effects of Cover Cropping and Conservation Tillage on Sediment and Nutrient Losses to Runoff in Conventional and Alternative Farming Systems" was completed in 2008, and "Fertilization Technologies for Conservation Tillage Production Systems in California" was completed in 2006.

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
Early Action Item	CDFA, ARB, CEC	Agricultural Research - Nitrous Oxide Reduction	Ongoing	N/A ⁴	CDFA has engaged in efforts with ARB and CEC during the past year to coordinate research proposals on reducing nitrous oxide emissions from fertilizer applications. As a result, CDFA has committed to funding a \$150,000 research project on baseline agricultural nitrous oxide emissions. CDFA has secured additional funding commitments from fertilizer industry to fund staff work to coordinate nitrous oxide research, conduct literature review on the current nitrous oxide baseline for agriculture, and to eventually establish recommended best management practices to reduce nitrous oxide emissions.
Not in Scoping Plan	CDFA, USDA	Agricultural Management Efficiencies.	TBD	TBD	CDFA has selected two projects under the USDA, CDFA-administered Specialty Crop Block Grant: the first is \$99,968 to University of California, Davis, for a study to provide walnut growers with a trade-off analysis model to calculate the environmental impact and economic cost for conventional, organic and IPM strategies, and to examine likely impacts of climate change on walnut development, (to be completed by 9/20/2010); Second, \$100,000 to the California Sustainable Winegrowing Alliance, which in collaboration with industry and academic partners will examine all data pertaining to emissions and offsets of greenhouse gases to better understand the grape growing sector's greenhouse gas "footprint", to be completed by 10/1/2009.
Not in Scoping Plan	CDFA	Bio-fuels (E-85 and Biodiesel)	TBD	TBD	CDFA Division of Measurement Standards (DMS) is working with renewable fuel producers to develop and market test fuels through an established variance program. This collaborative venture allows "experimental fuels" (fuels without ASTM adopted standards) to gain broad based market feedback, exposure, and market access with close regulatory oversight.
Not in Scoping Plan	CDFA, CEC, ARB	Hydrogen Fuel Standards	TBD	N/A ⁴	CDFA DMS, is charged with developing hydrogen fuel standards for use in combustion systems and fuel cells. These standards were adopted by regulation September 2008. CDFA DMS is also working with ARB and CEC to address the implementation of fuel quality standards. Reference standards will be used to determine hydrogen dispenser accuracy, field fuel sampling techniques, and laboratory test methodology.
Not in Scoping Plan	CDFA	Farm-Based Clean Energy Technologies	TBD	TBD	CDFA is working with The San Joaquin Valley Partnership and the SJV Clean Energy Organizations on developing strategies to remove barriers and promote the adoption of clean farm-based energy technologies, such as biogas, biofuels and biomass technologies.
Not in Scoping Plan	CDFA, CEC	Energy Crops	Jan. 1, 2009 - Dec. 31, 2011	TBD	An interagency agreement is expected to be consummated by the end of 2008 with the CEC to support research to demonstrate potential energy and industrial crops under commercial conditions; familiarize growers with these crops; focus on crops that use marginal lands and that minimize environmental externalities; determine the suitability of these crops for various energy markets; determine costs and energy balance of production; and, identify barriers to commercialization. Under the agreement, CDFA will manage research contracts, conduct field demonstrations and prepare reports to disseminate.
Not in Scoping Plan	CDFA	Agricultural Carbon Sequestration and Land Management	September 2008-TBD	TBD	CDFA is organizing and hosting monthly "brown bag" seminars from experts in the area of agricultural carbon sequestration to identify opportunities for agriculture to reduce greenhouse gases through sequestration; barriers to overcome for growers to participate in carbon markets using on-farm carbon sequestration management strategies; and research needs to enable agricultural carbon sequestration protocol development.
	WATER SECTOR				
Not in Scoping Plan	CDFA, USDA-NRCS	Promote water use efficiency through case studies and outreach to growers	December 31, 2009	TBD	CDFA has a \$45,000 contract with NRCS to develop a forum to provide outreach to growers on irrigation methods and funding programs that promote water-use efficiency methods and technologies.
Not in Scoping Plan	CDFA/DWR/ARB	Ag Water Use Efficiency to reduce energy and related GHG emissions from the movement of water	Ongoing	TBD	CDFA, through the CAT will be collaborating with other state agencies to identify data to estimate the energy footprint of agricultural water use.

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
	OTHER SECTORS / STRATEGIES				
	Strategies Targeting GHG Emission Reductions at Agricultural Fairs				
Not in Scoping Plan	CDFA	Energy Efficiency	TBD	TBD	CDFA Division of Fairs and Expositions is facilitating energy audits and the implementation of measures to increase energy efficiency. Three fairs are currently engaged in energy efficiency retrofits that will result in annual emission reductions of 154,336 pounds of carbon dioxide (CO2), 68 pounds of nitrogen oxide (NOx), and 7 pounds of sulfur dioxide (SO2). Eight previously audited fairs could reduce their annual CO2 emissions by 757,869 pounds, their NOx emissions by 297 pounds, and SO2 emissions by 37 pounds pending their ability to secure the \$209,000 required to fund these projects. Upon the identification of additional programs that do not charge for their services, or upon securing a funding source to finance additional retrofit projects, the energy efficiency audits and retrofits would expand to all of the remaining eligible fairs.
Not in Scoping Plan	CDFA	Renewable Energy -Photovoltaic	TBD	TBD	CDFA Division of Fairs and Expositions continues to coordinate the funding, site selection, and installation of photovoltaic panels at fair facilities. Currently, 26 fairs have operational systems producing approximately 8.1 megawatts of energy. There are 12 projects in the pipeline with unknown completion dates.
Not in Scoping Plan	CDFA	Waste Reduction / Recycling	Ongoing	TBD	To date, 35 fairs in California are serving as community sites for e-waste recycling to assist in diverting waste to landfills. Several fairs have participated in recycling grant programs overseen by the Integrated Waste Management Board. Specifically, Fresno fair applied for and received a \$400,000 grant to build new footing areas in their paddock stalls at their horse race track and installed 4,000 square feet of new flooring in on of their pavilions. All of the products used consisted of recycled tire material.
	Total Reductions Expected from CDFA Led Strategies			1.0	
	CALIFORNIA ENERGY COMMISSION STRATEGIES				
	ELECTRICAL AND NATURAL GAS SECTOR				
E-1	CEC	Comprehensive Publicly Owned Utilities Efficiency Program	2016	3.5	POUs' pursue energy efficiency programs for their customers in all end uses, notably cooling and lighting. They report their goals and accomplishments to the Energy Commission.
Not in Scoping Plan	CEC	Building Energy Efficiency Standards in Place	Ongoing	2.1	Current energy efficiency requirements for newly constructed buildings, additions and alterations (Title 24, Part 6)
Not in Scoping Plan	CEC	Appliance Energy Efficiency Standards in Place	Ongoing	4.5	Current energy efficiency requirements for appliances sold in California (Title 20)
	TRANSPORTATION SECTOR				
T-4	CEC	Fuel-Efficient Tire Program	Ongoing	0.26	Adoption/Implementation in 2009-2010. A properly inflated tire helps reduce fuel GHG emissions by reducing tire rolling resistance.

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
	WATER SECTOR				
W-3	CEC, DWR, CPUC, SWRCB	Energy Intensity of the Water System	Ongoing	2 ³	Research, technical assistance and public funding support for projects that result in the energy saving requirements for conveying, treating, distributing and recycling water and wastewater.
W-5	CEC, DWR, CPUC, SWRCB	Increase Renewable Energy Production from Water	Ongoing	.9 ³	The purpose of this measure is to identify and implement specific projects that take advantage of the State's water system-related opportunities to generate renewable electricity. Examples: water moving through conduits, sunlight, wind, and gases emitted during treatment of wastewater at wastewater treatment plants.
	Total Reductions Expected from CEC Led Strategies			13.3	
	CA. INTEGRATED WASTE MANAGEMENT BOARD STRATEGIES				
	RECYCLING AND WASTE MANAGEMENT				
RW-2	CIWMB	Landfill Methane Capture Guidance Document	Guidance Document Complete April 2008, outreach on-going	TBD ³	The Landfill Methane Capture Guidance Document measure develops a document listing numerous best management practices (BMPs) and options that municipal solid waste (MSW) landfill owners and operators may reference to maximize greenhouse gas (GHG) emission reductions from their operations.
RW-3 (Substrategies listed below)	CIWMB	Zero Waste - High Recycling	On-going	reductions detailed below	Detailed description of related measures below.
RW-3: Substrategy 1	CIWMB	Anaerobic Digestion	Full implementation achieved by 2020	2 - 4 ³	Anaerobic digestion involves using an enclosed, covered system for accelerating decomposition of organic materials for the dual purposes of biogas production and waste volume reduction. Diverting organic waste from landfills to beneficial use can provide a significant reduction of GHG emissions through landfill methane avoidance. This strategy will also result in substantial renewable energy production that will aid in the 33% Renewable Portfolio Standards goal.
RW-3: Substrategy 2	CIWMB	Commercial Recycling	Full implementation achieved by 2020 • Conduct study to analyze the cost-benefits of commercial diversion programs • Encourage business and industry to implement commercial recycling programs (ILG contract) (2008-2012)	5 - 11 ³	GHG emissions reductions are achieved by recycling materials which reduce fossil fuel energy use, and in some cases, avoided methane emissions at landfills. Targets businesses with 100 or more employees and multi-family complexes consisting of more than five units and mobile home parks.
RW-3: Substrategy 3	CIWMB	Extended Producer Responsibility (EPR) & Environmentally Preferred Purchasing (EPP)	• Establish authority for EPR framework • Work with DGS regarding State procurement	TBD ³	EPR places a shared responsibility for end-of-life product management on the producers and all entities involved in the product chain, instead of the general public. EPP advances the purchase of products that have reduced GHG emissions, along with other environmental benefits, in their life-cycle as compared to baseline or commonly purchased products.

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
RW-3: Substrategy 4	CIWMB	Increase Production & Markets for Compost	Full implementation achieved by 2020 • Complete Life Cycle Assessment of organic diversion alternatives: spring 2009	2 - 4 ³	Diversion of organic materials from landfills can provide a significant reduction of GHG's through landfill methane avoidance while the organic materials can be used as feedstock for producing compost. Efforts include: completing a Life Cycle Assessment of organics diversion alternatives; development of compost based BMPs and compost specifications for agriculture crops; studying the effectiveness of compost as cover to mitigate methane emissions at landfills; and evaluating economic incentives/disincentives and siting and capacity issues.
Appendix C, Section 9. C.	CIWMB/ARB	Liquified Natural Gas from Landfill Gas Measure	Projects expected to be completed by end of 2010	1.0	The Liquefied Natural Gas (LNG) from Landfill Gas Measure implements grant-funded projects at two landfills to demonstrate commercial-scale technologies for converting landfill gas to LNG vehicle fuel.
Not in Scoping Plan - completed prior to Scoping Plan development	CIWMB	Achieve 50% Statewide Recycling Goal	Full implementation achieved	3.0 ³	
Not in Scoping Plan	CIWMB, CEC, ARB, CPUC	Waste Technology Demonstration & Development *	Full implementation achieved by 2020	TBD	Aid in the development of new technologies to reduce GHGs by providing necessary funding that will assist developers in demonstrating their technology on a commercial scale. Of particular interest is development of technologies that produce renewable energy from municipal solid waste.
	WATER SECTOR				
Appendix C, Section 4.E.	CIWMB	Watershed Friendly Landscape Guidelines	Full implementation achieved by 2020 • Develop generic guidelines and outreach strategy	2.7	Adopt guidelines that would reduce GHG emissions related to transportation of green material and generation of methane related to disposal of green materials in landfills. The guidelines can also reduce fossil fuel consumption by reducing landscape power equipment usage and by reducing the use of chemical fertilizers and also reduce GHG emissions related to water treatment and distribution.
	Total Reductions Expected from CIWMB Led Strategies			15.7 - 25 *	
NOTES: * Lower number reflected in the total calculated at the end of the Report Card.					
	CA. PUBLIC UTILITIES COMMISSION STRATEGIES				
	ELECTRICAL AND NATURAL GAS SECTOR				
Not in Scoping Plan. Reductions included in baseline.	CPUC	IOU Energy efficiency Programs	Ongoing through 2013	8.2	The 16,450 GWh of embedded EE from the load forecast.
E-1	CPUC	IOU Additional Energy Efficiency Programs	Begins 2014 (extension of same strategy above)	10.2	Using the 2008 ITRON High Goals Scenario of an additional 36,559 GWh of embedded EE.
E-1	CPUC	Long Term Energy Efficiency Strategic Plan	2009-2020	TBD	The Commission recently adopted the Long Term Energy Efficiency Strategic Plan, including four “Big Bold strategies” strategies: 1) All new residential construction in California will be zero net energy by 2020 2)All new commercial construction in California will be zero net energy by 2030 3) HVAC industry will be reshaped to ensure optimal equipment performance 4) All eligible low-income homes will be energy-efficient by 2020

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
E-2	CPUC	Customer-Installed CHP (non SGIP)	TBD	4.9	The Commission is implementing AB 1613 and AB 2791 to create a tariff for new smaller DG CHP systems. In addition, there will be future policy framework on CHP for all systems. ARB has target of 4,000 MW of new CHP. Assume from CEC report 1,574 MW of small CHP and 2,804 MW of larger CHP
E-2	CPUC	IOU Electricity Sector Carbon Policy	Began in 2007 (emissions performance standard); 2008 recommendations expected to ARB for AB 32 implementation (2012)	TBD	The Emissions Performance Standard creates rules that baseload generation to serve California consumers with be from power plants that have emissions no greater than a combined cycle gas turbine plant.
E-3	CPUC	Accelerated Renewables to 33% by 2020	Requires Legislation; RPS program currently limited to 20%	12.8	California to obtain 33% of its electricity from renewable resources by 2020. The 33% renewables acknowledges that the source of the renewable can be from the RPS, CSI, SGIP or other voluntary customer installations of renewables. The 12.8 MMT of reductions are in addition to the reductions achieved by 20% RPS.
Not new strategy. Reductions since 2002 included in baseline.	CPUC	20% Renewable Portfolio Standard	Program began in 2002 and target completion by 2010	12.4	Current RPS Program to provide level of reductions compared to a gas build-out scenario. Established under SB 1078 and accelerate by SB 107, increase procurement from eligible renewable energy resources by 1% until they reach 20% by 2010. Currently at ~12% renewables which is factored into the baseline for determining the Scoping Plan target for 2020.
E-4	CPUC	California Solar Initiative (Million Solar Roofs)	Program began in 2007; projected completion by 2016	2.2	Known in Governor's office under the label "Million Solar Roofs", the CSI is a subsidy based on performance to help buy-down the cost of rooftop solar PV. The goal is to install 3,000 MW of rooftop solar (and achieve greater market transformation). The CSI provides subsidies to retrofit residential and all non-residential customer classes. This program is the companion to the Energy Commission's New Solar Homes Partnership (NSHP)
CR-1	CPUC, CEC	Energy Efficiency: 800 mil. therms reduced consumption.	TBD	4.3	Strategy includes: utility energy efficiency programs; building and appliance standards; and additional efficiency and conservation programs.
CR-2	CPUC	Increased Use of Solar Water Heating	TBD	TBD	The PUC is currently in the process of implementing AB 1470 (Huffman) which requires consideration of the results of a pilot program in San Diego before implementing additional solar hot water heating incentives.
Not in Scoping Plan	CPUC	IOU CHP (Self Generation Incentive Program)	Began in 2001; ongoing	TBD	CHP has been removed from the SGIP program via legislation
Not in Scoping Plan	CPUC, CIWMB, ARB	Expand Awareness of AB1969	TBD	TBD	The CPUC has made new feed-in tariffs available for the purchase of up to 480 MW of renewable generating capacity from small facilities throughout California.

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
	WATER SECTOR				
W-3	CPUC, CEC, SWRCB, DWR	Water and Energy Conservation	TBD	TBD	The Commission has a current investigation into water conservation and subsequent energy conservation
	Total Reductions Expected from CPUC Led Strategies			55.0	
<div>NOTES:</div> <div><div>- All numbers are derived from the E3 GHG calculator, v.2.b, developed for the CPUC and the CEC. The numbers begin in 2008 and some of the reductions before this time may not be reflected. The Calculator was developed as part of R0604009</div><div>- The Commission is making a policy move away from 33% RPS to a more inclusive 33% renewables, including CSI and voluntary customer installation. Future years might have the California Solar Initiative included in the Accelerated Renewables to 33% strategy. For now, however, we have broken the numbers out separately.</div><div>- There are several cases where we use the term "additional" reductions. The current policy (the E3 GHG reference case) yields 21.1 MMT of reductions where the accelerated policy case (the additional) yields reductions on top of those assumed to occur in the reference case. There are an additional 29.6 MMT of reductions that will occur in this policy scenario. These two numbers combine to the total of 51 MMT for CPUC.</div></div>					
	DEPARTMENT OF WATER RESOURCES STRATEGIES				
	WATER SECTOR				
W-1	DWR, SWRCB	Water Use Efficiency	Dependent upon resources; BCP submitted for FY 08-09	1.4 ³	Promote greater implementation of water conservation measures, including best management practices, to improve efficiency
W-6	DWR	Public Goods Charge on Water	TBD	TBD	A fee to be used to fund end-use water efficiency improvements, system-wide efficiency projects, water recycling, and other actions that improve water and energy efficiency and reduce GHG emissions.
	Total Reductions Expected from DWR Led Strategies			1.4	
	OFFICE OF PLANNING AND RESEARCH STRATEGIES				
	OTHER SECTORS/STRATEGIES				
Chapter II Section A	OPR	CEQA Guidelines	1-Jan-10	No Direct Reductions	OPR is developing CEQA guidelines to help lead agencies address greenhouse gas impacts.
Not in Scoping Plan	OPR	Supplement to General Plan Guidelines	1-Dec-08	No Direct Reductions	OPR is developing a Supplement to the General Plan Guidelines to provide advice to cities and counties for including policies in their general plans to address climate change and greenhouse gas reduction strategies.
	Total Reductions Expected from OPR Strategies			0.0	
	STATE AND CONSUMER SERVICES AGENCY STRATEGIES				
	GREEN BUILDINGS				
GB-1	SCSA	Green Buildings Initiative (elements described in substrategies below)	Ongoing	1.8	This project focuses on implementing green building measures in new and existing buildings, including LEED certification, Retro-commissioning, Retrofit projects, and on-site clean generation projects (details below).

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
GB-1: substrategy 1	DGS, State Agencies	New state buildings	Ongoing		Ensuring all new and renovated state buildings are built to LEED-NC (New Construction) Silver or higher standards.
GB-1: substrategy 2	DGS, State Agencies	Existing state buildings	2015 – all existing state buildings over 50,000 SF in size to be LEED-EB certified by 2015		Attain LEED-EB (Existing Buildings) certification for all existing buildings over 50,000 square feet in size,
GB-1: substrategy 3	State Architect, Office of Public School Construction, Department of Education	Schools	Ongoing		Various activities to encourage California schools to be built and operated to high levels of energy and environmental performance.
GB-1: substrategy 4	DGS, State Agencies	Leased Buildings	Ongoing		Encourage owners and occupants of leased buildings to implement energy and environmental improvements in their buildings
GB-1: substrategy 5	DGS, State Agencies, CSU/UC	Distributed Generation	Ongoing		Implement clean renewable energy generation projects at state facilities. Eight projects have been implemented so far for 4.2 Megawatts of new clean generation capacity, and up to 32 additional projects are in the contracting process for an additional 25 Megawatts
GB-1: substrategy 6	DGS, State Agencies, CIWMB, DTSC	Environmentally Preferable Purchasing	Ongoing		Develop of environmentally preferable purchasing specifications, contracts and guidelines to promote the use of commodities that lower energy use, increase recycling and reuse and reduce the emission of greenhouse gasses.
GB-1: substrategy 7	California Building Standards Commission, CEC, DGS, State Architect, HCD, OSHPD	Green Building Code Development	Ongoing		Develop voluntary and mandatory California building codes to promote green buildings.
	TRANSPORTATION SECTOR				
Appendix C, Section 2.B.	DGS, BAR, DMV, OFAM	Right-size the State Fleet	TBD	TBD	This measure focuses on the number, type, and use of State vehicles with the goal of increasing the efficiency of vehicle uses and assignments. A typical effect of right-sizing is a reduction in the number of vehicles in the fleet overall, which can reduce the GHG emissions of the fleet.
Appendix C, Section 2.B.	DGS, BAR, DMV, OFAM	Removing Higher-Polluting Vehicles from the State Fleet	TBD	TBD	This measure will identify the most polluting vehicles in the state fleet and replace those vehicles or determine redundancy through right-sizing. With Fleet Asset Management System information, DGS Fleet, DGS Procurement, and the Bureau of Automotive Repair should work with operating agencies to present cost-benefit analyses of vehicle replacement or redundancy opportunities to the Department of Finance for appropriate budgetary action.
Appendix C, Section 2.B.	DGS, BAR, DMV, OFAM	Actively manage vehicle miles traveled and reduce petroleum consumption.	TBD	TBD	Eliminating trip redundancy to optimize vehicle utilization reduces the number of vehicle miles traveled, GHG emissions, criteria pollutants, and maintenance costs. Actively managing fuel consumption meets objectives by decreasing petroleum use through the increased use of renewable and alternative fuels for necessary business travel.
	Total Reductions Expected from SCSA Led Strategies			1.8	

TABLE 2: GHG EMISSION REDUCTION STRATEGIES AND TIMELINES FOR IMPLEMENTATION

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Strategy Name	Implementation Timeline	Expected GHG Reductions in 2020 ² (MMTCO ₂ E)	Brief Project Description
	STATE WATER RESOURCES CONTROL BOARD STRATEGIES				
	WATER SECTOR				
W-2	SWRCB, DWR, CEC	Water Recycling	by 2020	0.3 ³	This CAT measure proposes a requirement for development and implementation of water recycling plans by wastewater management agencies working with water supply agencies, where the recycling of treated effluent is not maximized at wastewater treatment plants located in areas of imported water supply. Implementation of water recycling plans would be prioritized for those plants that discharge to water bodies from which the wastewater cannot otherwise be easily recovered, such as the ocean. GHG benefits would be realized where recycled water would consume less energy than water obtained from existing sources.
W-4	SWRCB	Storm Water Reuse	by 2020	TBD ³	This CAT measures proposes that Low Impact Development (LID) be required to maximize the availability of storm water to increase local water supplies. Where favorable soil and geologic conditions exist, storm water would be infiltrated to increase groundwater supplies. In locations where potential infiltration is either limited or not recommended, capture and storage would be required to preserve storm water for nonpotable applications. GHG benefits would be realized where local water would consume less energy than water obtained from existing sources.
	Total Reductions Expected from SWRCB Led Strategies			0.3	
TOTAL ESTIMATED EMISSION REDUCTIONS FOR ALL STATE AGENCIES				179	
TOTAL STATE-WIDE EMISSION REDUCTION TARGET ESTABLISHED IN THE SCOPING PLAN; <i>INCLUDES REDUCTIONS FROM CAP & TRADE</i>				174	

FOOTNOTES:

1

Where multiple agencies are noted, the first is the lead agency and the rest work in collaboration to achieve strategy goals..

2

Strategies without GHG reduction figures are still in development stages.

3.

GHG emission reduction estimate not included in calculating the total reductions needed to meet the 2020 target as established in the Scoping Plan.

4.

These strategies will not result in direct reductions of GHG emissions but will facilitate reductions through associated voluntary actions and potential future regulatory efforts.

TABLE 3: GHG EMISSION REDUCTION TARGETS

Agency	GHG Emission Reductions in 2007	GHG Emission Reductions Expected from Proposed Strategies ¹	Agency GHG Emission Reduction Target
ARB	0.5	83.6 ²	83.6 ²
BTH	0.0	2.1	3.0
CalFIRE	2.2	5.0	5.0
CDFA	0.0	1.0	1.0
CEC ³	0.5	13.3	10.4
CIWMB ³	0.0	15.7 - 25	1 (15 ⁴)
CPUC ³	1.9	55.0	32.0
DWR	0.0	1.4	1.0
OPR ⁵	0.0	0.0	NA
SCSA	0.0	1.8	2.0
SWRCB	0.0	0.3	0.5
TOTALS	5.1		140
<i>Statewide Emission Reduction Targets as Established in the Scoping Plan</i>			174

FOOTNOTES:

1. The values in this column are taken from the agency totals in Table 2. The total cannot be directly calculated from these values due to issues of double counting and some differences in baseline assumptions.
2. These values do not include reductions achieved from a Cap & Trade Program, as explained in Table 2.
3. Values for the reductions from these agencies currently reflect different baseline assumptions than those used in the Scoping Plan.
4. Only 1 MMT of this target is included in the overall total. The balance of these reductions may occur largely out-of-state so are not counted toward the statewide target.
5. OPR has important programmatic responsibilities but does not have emission reduction regulatory authority.